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This paper describes an exploratory project of computer-assisted occupational guidance used with junior-high school boys in Altoona, Pennsylvania. A student interacts with the computer system from a terminal composed of a typewriter-input and readout device, a tape recorder, and a slide projector. With information related to the students' abilities, preferences, and educational plans stored in the computer, the student chooses one of 40 occupations about which he would like more information. After a brief description, if he wants more information, the computer summarizes his compatibility with the job, plays a taped interview with a worker, projects on-the-job scenes, and types a longer description of the job. The student may inquire about any number of jobs. Reactions to equipment were generally positive, with typeouts seen as most helpful. Content material was seen as at least adequate, although interesting and very useful. Procedures were seen as satisfactory and desirable, although 49% of the boys indicated they missed the opportunity to discuss problems during their sessions with the computer. (BP)

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EXPLORATION WITH A COMPUTER-ASSISTED OCCUPATIONAL GUIDANCE PROGRAM*

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I have very purposefully described our efforts at Penn State in developing a computer-assisted occupational guidance program as exploratory rather than experimental, searching rather than testing. The reason I have emphasized these descriptors is not that I don't wish to be as professionally acceptable as the experimenters. It is, rather, that exploring and searching is what we have been doing during the past three and one-half years, a period in which the number of projects designed to develop various types of computer-assisted guidance support systems has multiplied tremendously.

Within a very short period of time we should be able to find in the literature a considerable number of references describing outcomes of various of these approaches. Currently, however, little has been done with regard to the implementation, even on a limited basis, of most systems under development.

In the Department of Vocational Education at Penn State we are in the process of developing an approach, the pilot model of which has been tried out utilizing two groups of ninth grade boys. The first trial was conducted at Keith Junior High School in Altoona, Pennsylvania, with 72 boys in the spring of 1967. The second trial was conducted at Roosevelt Junior High School in the same city between October 1967 and May 1968 with 140 boys. Both groups were selected on the basis of them having indicated a preference for a vocational or technical course of study the following year.

Before going on to the discussion of outcomes, I will briefly describe the approach utilized during the trials. The student terminal provides the means by which a student interacts with the system. The terminal, tied into an IBM 1401 computer by telephone lines, is composed of a typewriter-like device, a tape recorder, and a slide projector, all under computer control.

The computer relates selected materials to the student, who is seated at the terminal, by either typing out a message through the typewriter, displaying a particular image on the slide projector, or by playing a previously recorded message on the tape recorder. The student relates meaningful messages to the computer by typing a short response on the typewriter. This short response required of the student is considered to be essential since longer typed messages would require a level of typing skill not ordinarily achieved by most ninth grade boys.

Information related to a certain students' abilities, preferences and educational plans are stored in the computer before the student begins the interactive phase. The student is oriented to the purposes of the system before he begins the first session. At that time, he is given a list of 40 occupations with corresponding codes representing his primary entry into the system. The computer's first request to the student is to ask him to select one of the 40 occupations on the list about which he would like to know more. After the student responds by typing an occupational code number, the computer then types out a short paragraph very briefly describing the occupation. The student is then asked if he wishes to find out more about the occupation. If the student responds positively, four operations are activated in the following order: 1) discrepancies which may exist between the student's ability-preference profile and the requirements for the particular occupation are typed out; 2) a two-minute taped interview with a worker in the occupation is played; 3) an image is projected on the slide projector screen depicting the worker undertaking four typical tasks in the occupation and 4) a 150 to 200 word description of the occupation is typed out for the student to read, and to keep for later use.

The student is allowed to proceed through as many occupations as he wishes during as many 40-minute sessions as he wishes. He may, at any point in theprocess, indicate that he would like the computer to select for him those occupations from the list of 40 which he might be interested in exploring further. The computer, by comparing the aptitude-preference profile for the student with the 40 occuaptional profiles seeks those occupations for which no discrepancies exist. It lists those occupations for the student.

In order to assess the outcomes of the field trials a large amount of data was collected. These data included:

1) amount of time voluntarily spent by each student with the terminal.
2) number and type of occupational descriptions requested by each student.
3) reaction of each student to the equipment, the content and procedures utilized as measured by a 44 item inventory.
4) students' expectations of the experience; their changes in awareness of self as related to work; the degree to which their horizons of occupational opportunities increased or decreased; the degree to which students developed an exploration strategy; and the degree to which students were stimulated to seek additional information regarding occupational opportunities--all collected by way of a 30-minute interview immediately following the terminal experience.

5) change in expressed tentative occupational choice between September and March for the group having the terminal experience as compared to a similar group of vocational-technical bound boys not having the experience and a group of non-vocational-technical bound boys.
6) selection of tenth grade course of study as compared to previous two years selections at the same school.
7) changes in occupational values as measured by a 35-item inventory.
8) changes in the students' general knowledge about occupations as measured by a 149-item test.

Because of the little time allotted for discussing these results, I will dwell exclusively upon the students' reactions to their terminal experiences. I have included in the handout the actual percentages recorded for each alternative response to each of the 44 items. This discussion will be broken down into three sections: 1) reactions to equipment; 2) reactions to content; and 3) reactions to procedures.

Reactions to Equipment

In both the Roosevelt (R) group (N = 136) and the Keith (K) group (N = 75) only three per cent of the boys felt that working with the computer system was boring. Over 70 per cent of the boys in each group indicated that they felt the experience was "definitely interesting." About 80 per cent of the boys in each group felt that the equipment they worked with definitely aided them in understanding more about work. They also indicated that working with the computer system was a good way to learn about occupations ("definitely good" - R, 80 per cent; K, 70 per cent). Although the

computer system was perceived by at least 90 per cent of both groups as helping them to understand the occupational information presented, 20 per cent more of the Keith sample than the Roosevelt sample (77 per cent - 57 per cent) felt it was "definitely an aid."

Over 80 per cent of both groups indicated that learning to use the terminal equipment was a simple task, and that they were given adequate time to learn its use. Related to this finding is the reaction by over 60 per cent of both groups that they were at least "slightly tense" in their first session at the terminal. In their last session, however, only 16 per cent of the Keith sample and four per cent of the Roosevelt sample felt even "slightly tense."

Approximately 25 per cent of both groups indicated that they would have preferred at least slightly more control of the terminal system. About 60 per cent of both groups felt that they were given enough control of the terminal system. Over 70 per cent of both samples indicated that they felt they were kept active enough when working at the terminal. Personal observations of the students seated at the terminal by the project staff shed some doubt on the accuracy of this result.

One of the more interesting comparison of responses between the Keith sample and the Roosevelt sample is found when analyzing the responses to questions #14 and #15 in the first subsection of the Reaction Inventory. Question #14 asks, "Which way of presenting information about jobs was most helpful to you?" Question #15 asks, "Which way of presenting information about jobs was least helpful to you?" The three alternative choices to each question are: 1. TYPE OUT ON SHEETS; 2. SLIDES; and 3. TAPE RECORDING.

Of the Keith sample utilizing the initial version of the program, 71 per cent indicated they felt the typeouts were most helpful, 14 per cent felt that the slides were most helpful and the remaining 15 per cent felt the tape recordings were most helpful. The corresponding choices of the Roosevelt sample were typeouts (51 per cent), slides (10 per cent) and tape recordings (38 per cent). When compared to the Keith sample, 20 per cent fewer of the Roosevelt group felt that the typeouts were most helpful, and 23 per cent more of the same group felt that the tape recordings were most helpful. Although the majority of the boys in both trials found the typeouts to be most helpful, the overwhelming choice of the typeouts to the exclusion of the slides and tape recordings as found at Keith was not corroborated at Roosevelt.

When asked which aspect of the system was least helpful the Keith group responded to the same three alternatives in the following manner: typeouts, 12 per cent; slides, 55 per cent; and tape recordings 32 per cent. The corresponding results of the Roosevelt boys were: typeouts, 15 per cent; slides, 55 per cent; and tape recordings, 32 per cent. The corresponding results of the Roosevelt boys was: typeouts, 15 per cent; slides, 66 per cent; and tape recordings 16 per cent. Since no attempt was made to revise the tape recordings between the first and the second field trial, there appears to be no obvious cause for the higher level of acceptability of the recordings in the Roosevelt group. The fact that both groups generally perceived that machine breakdowns (including tape recorder) were not a serious problem appears to eliminate that factor as a contributing cause of the difference. The more time allotted to the boys in the Roosevelt trial, the increased attention given to planning of the second trial, or the increased focus given to orientation of the Roosevelt boys may have all contributed to the tape recordings better fitting into their total perceived picture.

Generally, most of the youngsters felt that the typeouts gave the most information and had the additional value of enabling the boys to refer to them at a later time. The primary objections to the slides were that they were "inadequate" and "not original." Although the slides were actually pictures of real workers in an occupation, they were perceived as "phony" by the youngsters. The lack of action was the major source of inadequacy of the slides according to the youngsters. Another inadequacy as phrased by a number of boys was that the slides didn't tell enough, "You just saw the picture of the occupation--maybe it required a college degree, and the slides didn't tell you that much."

Reactions to Content Material

Over 70 per cent of both groups felt that there was an adequate amount of information presented about each occupation. Over 80 per cent of the boys within both groups felt that the variety of information, although adequate, was not sufficiently detailed. Over 90 per cent of both groups indicated that the occupational information presented was interesting as well as valuable. In keeping with a Flesch scale reading analysis we performed, over 90 per cent of both groups felt the material was easy to understand.

The boys in both groups generally felt that the occupational information presented to them via the computer terminal was superior to other types of occupational information to which they've been exposed (K, 81 per cent; R, 84 per cent). Sixty-eight per cent of the boys in the Keith sample and 74 per cent of the boys in the Roosevelt sample felt that the information would "definitely" be of use to them. Over 75 per cent of both groups indicated that they were able to give more attention to the occupational information presented via the terminal than to other means of presenting occupational information to which they'd been exposed.

There were three items included within this sub-part of the Reaction Inventory which attempt to get at the effects of the terminal experience on the students. They are: 1. "Did the computer-based material encourage you to explore occupations on your own?" 2. "Do you think that the occupational information helped you to related your knowledge about yourself to the characteristics of the various occupations?" and 3. "As a result of the occupational information you've received, are you considering more or fewer possible occupational choices than before?"

Over 75 per cent of both groups indicated that they were encouraged by the experience to explore occupations on their own. Eighty per cent of the boys in the Keith sample and 90 per cent of the boys in the Roosevelt sample felt that the occupational information presented helped them to relate their knowledge of themselves to a variety of occupations. Slightly less than 70 per cent of the boys in both groups indicated that as a result of the experience they were considering more occupations than they had previously. About 25 per cent of the boys in both samples were considering fewer possible occupational choices.

In the first section of the Reaction Inventory the boys were asked to indicate which way of presenting information was most and least helpful to them. In Part II of the inventory they were asked which source of information was most and least helpful. The responses to these latter two items corroborate the findings discussed previously in this section. Of the boys in the Keith sample 77 per cent indicated that the typeout was most helpful, twelve per cent felt the slides were most helpful and twelve per cent preferred the tape recordings. Corresponding percentages of the Roosevelt sample to the item were: 52 per cent for typeouts; eight per cent for slides; and 40 per cent for tape recordings. The Roosevelt sample indicated that

the source of information that was least helpful was: typeouts, 12 per cent; slides, 75 per cent; and tape recordings, 13 per cent. The "least helpful" responses of the Keith sample were: typeouts, six per cent; slides, 56 per cent; and tape recordings, 38 per cent. Again the higher degree of acceptability of the tape recordings in the Roosevelt group is obvious.

Reactions to Procedures

Boys in both groups generally agreed that the typeouts as well as being most helpful in making a future occupational choice (60 per cent of K and 50 per cent of R) are probably the most enjoyable (25 per cent of K and R) of the three elements of the system. They also agreed that the slides were the least helpful (45 per cent of K and R) and least enjoyable (25 per cent K and R) aspect of the system. The attitudes of both groups toward the tape recordings fell somewhere between the extremes of desirability represented by the typeouts on the one hand, and the slides on the other. The tape recordings represented a more helpful and more interesting source of information for the Roosevelt group than for the Keith group.

When asked if they missed the opportunity to discuss problems during their sessions with the computer, 49 per cent of the Keith boys indicated that they did, 29 per cent felt they didn't and the remainder had no opinion. Fifty-seven per cent of the Roosevelt boys missed the opportunity for discussion of problems, 27 per cent did not and the remainder had no opinion. Thus, about twice as many boys generally felt the need for discussion of problems during the sessions with the terminal than didn't.

Exactly 87 per cent of both the Keith and Roosevelt boys felt that if given a choice they would favor obtaining occupational information by way of the computer terminal than any other means. Over 90 per cent of both groups felt satisfied with what they learned as compared to the effort they had

put into the experience. More than 60 per cent of both groups indicated that they would have preferred sessions that were over an hour in length. During both trials the sessions were held to 40 minutes each.

Appendix I

RESULTS OF REACTION INVENTORY

PART I - Reactions to Equipment

1. Was the computer an aid or an obstacle to you in understanding the occupational information presented?

Keith (N=69)		Roosevelt (N=136)
77.0	Definitely an Aid	57.3
19.0	Somewhat of an Aid	31.6
1.5	Little Aid	3.6
0.0	Definitely an Obstacle	0.0
1.5	Somewhat of an Obstacle	3.6
0.0	Little bit of an Obstacle	.7
1.5	No Opinion	2.9

2. Did you have enough time at the beginning of your work with the computer to learn how to use it?

Keith		Roosevelt
33.0	Definitely Yes	60.2
39.0	Somewhat Yes	27.9
11.5	Slightly Yes	4.1
1.5	Definitely No	3.6
6.0	Somewhat No	5.8
4.5	Slightly No	2.9
4.5	No Opinion	1.5

3. Do you think that more or less time is needed to learn how to use the computer?

Keith		Roosevelt
20.5	Definitely More Time	9.5
19.0	Somewhat More Time	22.0
38.0	Little More Time	41.2
0.0	Definitely Less Time	3.6
6.0	Somewhat Less Time	5.8
6.0	Little Less Time	7.4
10.0	No Opinion	10.3

4. Was it easy or hard for you to learn how to use the computer?

Keith		Roosevelt
30.5	Definitely Easy	44.9
45.0	Somewhat Easy	41.9
10.0	Little Bit Easy	4.4
1.5	Definitely Hard	0.0
3.0	Somewhat Hard	1.5
7.0	Little Bit Hard	7.4
3.0	No Opinion	0.0

5. At the beginning of your work with the computer were you relaxed or tense when working with it?

Keith		Roosevelt
4.5	Definitely Relaxed	11.8
11.5	Somewhat Relaxed	25.0
8.5	Slightly Relaxed	10.3
23.0	Definitely Tense	4.4
19.0	Somewhat Tense	20.6
32.0	Slightly Tense	27.2
1.5	No Opinion	.7

6. During your last session with the computer were you relaxed or tense while working with it?

Keith		Roosevelt
40.5	Definitely Relaxed	86.0
27.5	Somewhat Relaxed	6.6
16.0	Slightly Relaxed	3.6
3.0	Definitely Tense	.7
4.5	Somewhat Tense	.7
8.5	Slightly Tense	2.2
0.0	No Opinion	0.0

7. Do you feel that you were kept active enough when working with the computer?

Keith		Roosevelt
26.0	Definitely Active	40.4
27.5	Somewhat Active	33.0
19.0	Slightly Active	11.8
0.0	Definitely Passive	4.4
6.0	Somewhat Passive	2.9
11.5	Slightly Passive	4.1
10.0	No Opinion	2.2

8. Do you feel that you should have had more control while in the sessions with the computer?

Keith		Roosevelt
12.0	Definitely Yes	20.6
22.0	Somewhat Yes	23.5
20.0	Slightly Yes	16.2
13.5	Definitely No	8.1
6.0	Somewhat No	11.0
4.5	Slightly No	5.9
22.0	No Opinion	15.0

9. Do you feel that there were limitations in using this computer?

Keith		Roosevelt
19.0	Definitely Yes	24.3
20.0	Somewhat Yes	19.1
19.0	Slightly Yes	20.6
11.5	Definitely No	11.8
3.0	Somewhat No	10.3
3.0	Slightly No	2.9
24.5	No Opinion	11.0

ADDITIONAL EXPLANATION:

6.0	Time	4.4
0.0	Breakdowns	.7
0.0	Poor Recordings	0.0
0.0	Poor Slides	0.0
74.0	No Explanation	66.1
6.0	Other	2.2
8.0	Job Descriptions	8.1
6.0	Not Categorized	18.4

10. Do you think that this type of equipment is valuable or worthless in helping you to understand more about jobs?

Keith		Roosevelt
79.0	Definitely Valuable	83.1
12.0	Somewhat Valuable	12.5
1.5	Slightly Valuable	2.2
0.0	Definitely Worthless	0.0
1.5	Somewhat Worthless	0.0
1.5	Slightly Worthless	1.5
4.5	No Opinion	.7

ADDITIONAL EXPLANATION:

41.0	Gave Good Description	39.7
16.0	More Detailed Information than Other Sources	16.9
3.0	Information Obtained More Easily Than by Reading or Asking	8.8
1.5	Typeout Left Permanent Record	.7
38.0	No Explanation	33.8

11. Do you think that working with the computer was interesting or dull?

Keith		Roosevelt
72.5	Definitely Interesting	73.5
23.0	Somewhat Interesting	20.6
1.5	Slightly Interesting	2.2
1.5	Definitely Dull	0.0
0.0	Somewhat Dull	.7
1.5	Slightly Dull	2.2
0.0	No Opinion	.7

12. Overall, do you think that working with the computer is a good or bad way to learn about occupations?

Keith		Roosevelt
69.5	Definitely Good	80.1
19.0	Somewhat Good	16.2
3.0	Slightly Good	1.5
0.0	Definitely Bad	0.0
1.5	Somewhat Bad	0.0
1.5	Slightly Bad	.7
6.0	No Opinion	1.5

13. How often did you meet up with machine errors or breakdowns?

Keith		Roosevelt
8.5	Very Often	6.6
16.0	Fairly Often	29.4
58.0	Seldom	53.7
13.0	Never	10.3
4.5	No Opinion	0.0

14. Which way of presenting information about jobs was most helpful to you?

Keith		Roosevelt
71.0	Typeouts on Sheets	51.0
14.0	Slides	10.3
15.0	Tape Recordings	38.2

ADDITIONAL EXPLANATION:

40.0	Typeout Gave the Most Information and Could Be Kept for Later Reading	33.8
13.0	Slides Showed What Job Was Like	10.3
11.5	Interview with Experienced Men Useful	25.7
35.5	No Explanation	23.5

15. Which way of presenting information about jobs was least helpful to you?

Keith		Roosevelt
12.0	Typeout on Sheets	14.8
55.5	Slides	65.6
32.0	Tape Recording	15.6

ADDITIONAL EXPLANATION:

6.0	Not Enough Information on Typeout	11.0
36.0	Slides Not Original or inadequate	47.8
14.5	Tape Recording Distorted	1.5
3.0	Tape Recording a Rehash of Other Information	2.9
3.0	Tape Recording Not Really Instructive	7.4
32.0	No Explanation	25.0
6.0	All Ways of Presentation Were Useful	4.4

PART II - Reactions to Content Material

1. How would you rate the information presented to you in comparison to other kinds of occupational information to which you have been exposed?

1. (Continued)

Keith		Roosevelt
37.5	Definitely Superior	30.9
35.0	Somewhat Superior	41.2
8.5	Slightly Superior	11.8
0.0	Definitely Inferior	.7
0.0	Somewhat Inferior	0.0
0.0	Slightly Inferior	2.2
19.0	No Opinion	13.2

2. What is your opinion as to the information itself?

Keith		Roosevelt
58.0	Definitely Valuable	62.5
35.0	Somewhat Valuable	32.4
7.0	Slightly Valuable	2.9
0.0	Definitely Worthless	0.0
0.0	Somewhat Worthless	0.0
0.0	Slightly Worthless	.7
0.0	No Opinion	1.5

3. What is your opinion as to the information itself?

Keith		Roosevelt
47.5	Definitely Interesting	56.6
32.0	Somewhat Interesting	33.8
11.5	Slightly Interesting	5.1
0.0	Definitely Dull	.7
0.0	Somewhat Dull	0.0
3.0	Slightly Dull	0.0
6.0	No Opinion	3.7

4. Was the information easy or difficult to understand?

Keith		Roosevelt
53.5	Definitely Easy	63.2
30.5	Somewhat Easy	29.4
7.0	Slightly Easy	3.7
0.0	Definitely Difficult	0.0
1.5	Somewhat Difficult	0.0
4.5	Slightly Difficult	2.9
3.0	No Opinion	.7

5. Do you feel that the information about the occupations was too general or too detailed?

Keith		Roosevelt
16.0	Definitely General	25.0
22.0	Somewhat General	23.5
13.0	Slightly General	10.3
16.0	Definitely Detailed	5.1
8.5	Somewhat Detailed	7.4
1.5	Slightly Detailed	5.1
23.0	No Opinion	23.5

6. Do you feel that there was enough information about each of the various occupations?

Keith		Roosevelt
33.0	Definitely Yes	43.4
30.5	Somewhat Yes	26.5
13.0	Slightly Yes	2.9
3.0	Definitely No	13.2
7.0	Somewhat No	8.8
8.5	Slightly No	5.1
4.5	No Opinion	0.0

7. Do you think that there was sufficient variety of information about the various occupations?

Keith		Roosevelt
33.0	Definitely Yes	47.1
35.0	Somewhat Yes	29.4
8.5	Slightly Yes	4.4
8.5	Definitely No	5.9
6.0	Somewhat No	5.9
0.0	Slightly No	2.9
8.5	No Opinion	4.4

8. Do you feel that this information was and will be of use to you?

Keith		Roosevelt
68.0	Definitely Yes	73.5
10.0	Somewhat Yes	16.9
6.0	Slightly Yes	5.1
0.0	Dfinitely No	.7
0.0	Somewhat No	1.5
4.5	Slightly No	0.0
11.5	No Opinion	2.2

9. Did the computer-based material encourage you to explore occupations on your own?

Keith		Roosevelt
27.5	Definitely Yes	38.0
26.0	Somewhat Yes	29.0
23.0	Slightly Yes	11.0
3.0	Definitely No	7.0
3.0	Somewhat No	4.0
3.0	Slightly No	5.0
14.5	No Opinion	6.0

10. Do you think that the occupational information helped you to relate your knowledge about yourself to the characteristics of the various occupations?

Keith		Roosevelt
26.0	Definitely Yes	42.6
40.5	Somewhat Yes	36.0
13.0	Slightly Yes	11.8
4.5	Definitely No	1.5
1.5	Somewhat No	.7
1.5	Slightly No	1.5
13.0	No Opinion	5.9

11. As a result of the occupational information you've received, are you considering more or fewer possible occupational choices than before?

Keith		Roosevelt
19.0	Definitely More	25.0
32.0	Somewhat More	25.0
14.5	Slightly More	19.0
14.5	Definitely Fewer	15.0
4.5	Somewhat Fewer	7.0
6.0	Slightly Fewer	4.0
10.0	No Opinion	5.0

12. Which source of information was most helpful?

Keith		Roosevelt
76.5	Typeout on Sheets	52.0
11.5	Slides	8.0
11.5	Tape Recordings	40.0

ADDITIONAL EXPLANATION:

9.0	Typeout of a Useful Summary	14.0
38.0	Typeout Gave More Information than Slides or Tapes and Could Be Read Later	27.0
9.0	Slides Showed Conditions on the Job	6.0
7.0	Tape Interview Useful	29.0
35.0	No Explanation	20.0
1.5	All Sources of Information Equally Useful	3.0

13. Which source of information was least helpful?

Keith		Roosevelt
6.0	Typeout on Sheets	12.0
56.0	Slides	75.0
38.0	Tape Recordings	13.0

ADDITONAL EXPLANATION:

6.0	Typeout Does Not Have Enough Information	7.0
26.5	Unoriginal Slides	
11.5	Tape Not Really Instructive; Rehash of Computer Typeout	8.0
10.0	Tape Inaudible or Tape Broke	2.0
34.0	No Explanation	21.0
9.0	Too Few Slides	12.0
3.0	All Sources of Information Helpful	4.0

14. Compared to other sources of information (i.e., books, lectures, pamphlets, talks, etc.) the attention you were able to give to the computer-based information was:

Keith		Roosevelt
46.0	Definitely More Attention	42.6
14.5	Somewhat More Attention	25.7
16.0	Slightly More Attention	8.8
1.5	Definitely Less Attention	.7
0.0	Somewhat Less Attention	.7
1.5	Slightly Less Attention	.7
20.0	About the Same	20.6

PART III - Reactions to Procedures

1. If you had to make a choice, how favorable or unfavorable would you be towards computer-assisted occupational information as compared to other means of getting occupational information?

Keith		Roosevelt
58.0	Definitely More Favorable	49.3
24.5	Somewhat More Favorable	27.9
4.5	Slightly More Favorable	10.3
0.0	Definitely Less Favorable	.7
1.5	Somewhat Less Favorable	1.5
0.0	Slightly Less Favorable	1.5
11.5	No Opinion	8.8

2. How long do you think you could work efficiently with the computer at one sitting?

Keith		Roosevelt
7.0	Less than 1/2 Hour	1.5
27.5	1/2 Hour to 1 Hour	37.5
27.5	1 to 2 Hours	32.4
37.5	Over 2 Hours	28.7

3. In view of what you have learned in this program, how do you feel about the effort you put into it?

Keith		Roosevelt
58.0	Definitely Satisfied	55.9
20.0	Somewhat Satisfied	28.7
13.0	Slightly Satisfied	5.9
1.5	Definitely Dissatisfied	1.5
1.5	Somewhat Dissatisfied	1.5
0.0	Slightly Dissatisfied	1.5
6.0	No Opinion	5.1

4. Did you miss or wish for opportunities for discussion of problems during your sessions with the computer?

Keith		Roosevelt
11.5	Definitely Yes	22.8
26.0	Somewhat Yes	19.1
11.5	Slightly Yes	15.4
10.0	Definitely No	14.0
11.5	Somewhat No	11.0
7.0	Slightly No	1.5
22.0	No Opinion	16.2

5. Do you feel that you had adequate time to think about the information as it was presented during your sessions with the computer?

Keith		Roosevelt
29.0	Definitely Adequate	44.9
33.0	Somewhat Adequate	28.2
13.0	Slightly Adequate	9.5
3.0	Definitely Inadequate	3.7
7.0	Somewhat Inadequate	5.9
8.5	Slightly Inadequate	5.1
6.1	No Opinion	2.9

6. What is your opinion as to the sequence or order of presentation of information on the various occupations?

Keith		Roosevelt
46.0	Definitely Logical	47.1
23.0	Somewhat Logical	37.5
16.0	Slightly Logical	8.1
0.0	Definitely Haphazard	0.0
1.5	Somewhat Haphazard	.7
4.5	Slightly Haphazard	0.0
8.5	No Opinon	6.6

7. Which part of the total program helped you the most?

Keith		Roosevelt
	Outside Readings or Discussions	8.9
	Slides	14.4
	Type Outs	34.4
	Tape Recordings	32.2
	Opportunities for Reviews with the Counselor	20.2

8. Check any of the following phrases which you think apply to the keypunch and type outs.

Keith		Roosevelt
8.5	Confusing to Operate	0.0
2.0	Too Little Information	7.0
22.0	Too Little Time With It	12.0
10.0	Too Little Control Over It	7.0

8. (Continued)

Keith		Roosevelt
43.5	Easy to Operate	49.0
3.0	Too Much Information	5.0
3.0	Too Much Time with It	13.0
5.0	Not Very Active for Me	3.0
3.0	(YOUR OWN COMMENT)	4.0

9. Check any of the following phrases which you think apply to the tape recordings.

Keith		Roosevelt
	Confusing to Listen to	3.0
	Unpleasant Voices	7.0
	Too Short	16.0
	Useless Information	7.0
	Good Interviews	17.0
	Pleasant	3.0
	Too Long	16.0
	Helpful Information	25.0
	(YOUR OWN COMMENT)	5.0

10. Check any of the following phrases which you think apply to the slide pictures.

Keith		Roosevelt
	Unattractive	.7
	Useless	9.3
	Too Small	6.0
	No Connection with the Job	7.0
	Attractive	14.0
	Helpful	16.0
	Not Enough Detail	32.0
	Appropriate to the Job	11.0
	(YOUR OWN COMMENT)	5.0

11. What aspect of the program was most enjoyable for you?

Keith		Roosevelt
23.5	Typeout	25.0
15.0	Slides	3.7
11.0	Tape	19.1
4.0	Other	7.4
7.0	No Answer	4.4
30.0	Learning to Run Computer	23.5
7.0	Choosing Desired Job	10.3
2.5	Enjoyed All Parts Equally	2.9

12. What aspect of the program was least enjoyable for you?

Keith		Roosevelt
9.5	Typeout	15.4
31.5	Slides	25.0
26.0	Tape	9.6
15.0	Other	34.6
9.5	No Answer	8.1
8.0	No Source Helpful	6.6

13. What part of the program do you think will help you the most in making a future occupational choice?

Keith		Roosevelt
60.0	Typeout	50.0
9.5	Slides	0.0
13.5	Tape	16.2
9.5	Other	17.6
8.0	No Answer	13.2

14. What part of the program do you think will help you the least in making a future occupational choice?

Keith		Roosevelt
9.5	Typeout	7.4
46.5	Slides	44.9
30.0	Tape	9.6
2.5	Other	27.9
11.0	No Answer	9.6

15. List any comments, suggestions, or recommendatins which you might have to improve the usefulness of the computer-assisted occupational information system.

Keith		Roosevelt
11.0	More Information	
21.0	More Time	
6.0	More Slides	
2.5	Fewer Machine Breakdowns	
29.0	No Comments	
7.5	Computer Should Produce Information Faster	
14.0	Program Generally Helpful	
4.0	Fewer Slides	
2.5	Fewer Tapes	
0.0	No Typeout	
2.5	Better Quality Recording	